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in the plans therefor for the proper rat-proofing of such building or superstructure in substantial compliance with the provisions of this ordinance when, in the judgment of the building inspector (or other official whose duty it is to grant building permits) it is practicable, desirable, or necessary that such rat-proofing be done; but in no event shall such reconstruction, alteration, or repair be permitted without full compliance with all the provisions of this ordinance, where the cost and expense of such reconstruction, alteration, or repair shall, in the opinion of the building inspector (or other official whose duty it is to issue building permits) equal or exceed forty (40) per cent of the value of the structure sought to be reconstructed, altered, or repaired.

SEC. 15. That the word person as used in this ordinance shall be taken to mean and include firms, copartnerships, corporations, and persons of both sexes.

SEC. 16. That any ordinance or part of ordinance in conflict with the provisions of this ordinance is hereby repealed to the extent of such conflict.

SEC. 17. Should any part of this ordinance be declared invalid, the remaining portions shall not thereupon be invalidated, but shall remain in full force and effect.

SEC. 18. *Penalty*.—Any person violating any of the provisions of this ordinance shall be punished by fine not to exceed ——— or by imprisonment not to exceed ——— or by such fine and imprisonment.

SEC. 19. *Emergency*.—(The clause declaring an emergency to be inserted if necessary under local laws.)

TYPHOID REDUCTION IN SOUTH CAROLINA.

Comparative Results in Counties With and Without Health Organizations.¹

By L. A. RISER, M. D., Director County Health Work, South Carolina State Board of Health.

The vital statistics department was organized in South Carolina in 1915, and we have no accurate records of deaths from typhoid previous to that year. In this paper I will attempt to show how typhoid fever has decreased, and what methods are being used to effect this decrease. The decrease has been gradual since 1915, with the exception of 1918, during which year the Army camps brought more than 100,000 people to the State. This does not refer to soldiers, but to workmen and camp followers, who were not under Army restrictions, and we credit to this fact the increase in 1918, as the cities in which these camps were constructed showed very large increases, some of them doubling their number of deaths of the preceding year.

¹ Read before the Section on Preventive Medicine and Public Health at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920, and published in the Journal of the American Medical Association, June 12, 1920. Reprinted here by permission.

ORGANIZATION.

In 1917 the first county health unit was formed in South Carolina. This organization was perfected in Orangeburg County, one of the largest and most prosperous counties in the State. The unit consisted of a physician as director, with a corps of inspectors and carpenters. Greenwood County also took up the work during the year.

TYPE OF WORK.

The ultimate object of the health unit was to stamp out typhoid fever and other intestinal diseases. The type of work was both educational and constructive. The physician gave lantern-slide lectures in each school district on various health subjects, but stressed intestinal diseases spread by bad sanitation. The inspectors made a survey of the district, visiting each home and securing data as to living conditions of the family and sanitary surroundings of the home. Wherever possible the inspector persuaded the householder to put in a sanitary privy; if the inspector failed, then the physician made a personal visit to the home. The carpenters assisted in the construction of the privies. Specimens of feces were collected and examined for intestinal parasites, and when the patients were found to be infected they were given free treatment. By circulars, posters, personal letters, exhibits, school contests, public lectures, newspaper publicity, and personal interviews the importance of sanitation was constantly kept before the public.

GROWTH AND PROGRESS OF COUNTY ORGANIZATIONS.

In 1918 four whole-time county health organizations were perfected; in 1919, six; and in 1920, seven. In 1918 medical inspection of rural schools was made a part of the work, and public-health nurses were added to the county units. Darlington County is probably the only county in the South in which every rural school child, white or colored, has received a medical examination and a follow-up visit from a nurse.

Each organization is now designated as a county health department, and the physician has by legislation been made the county health officer, and his duties are prescribed. Counties which in 1917 appropriated \$2,000 for this work are now appropriating \$5,000, and in addition, cars are furnished the nurses by local organizations. Our State appropriation for 1917 was \$7,000 for county health work; for 1920 we have been given \$27,000, a portion of which will be used for a traveling moving-picture unit.

DIFFICULTIES ENCOUNTERED.

In 1917 comparatively few sanitary privies were built—pioneer work is always difficult. The war with all its effects, the shortage of labor and material, the physical unrest, the breaking up of depart-

ments by the volunteering of men (every county director but one, as well as the State director, having volunteered and entered service) crippled the work for a time. The present high prices and low salaries are keeping up the difficulties, but with it all we have something to show for our work.

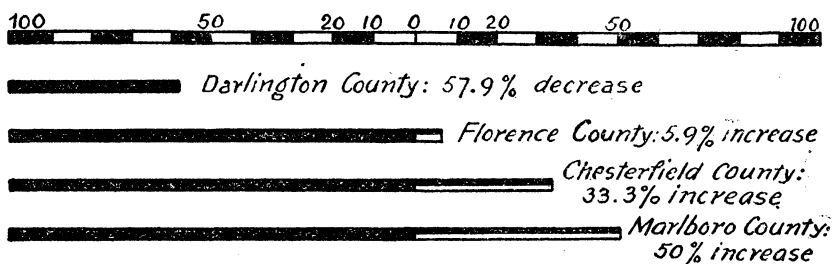


CHART I.—Increase and decrease in incidence of typhoid, 1917-1919: Darlington has had a county health department for two years. Florence has had a city but no county health department. Chesterfield and Marlboro have had neither city nor county health departments.

RESULTS OF WORK.

Each county in which we have worked two years has shown a decided decrease in typhoid; the first year an increase is usually shown, owing, perhaps, to better reporting. We have selected this disease as a type of intestinal disease and have selected Darlington and Orangeburg Counties for comparative results with surrounding counties having no health organizations, as these counties have had no campaigns of giving free typhoid inoculations. We are giving results from each county touching Darlington where no work has been done, and each touching Orangeburg where no work has been

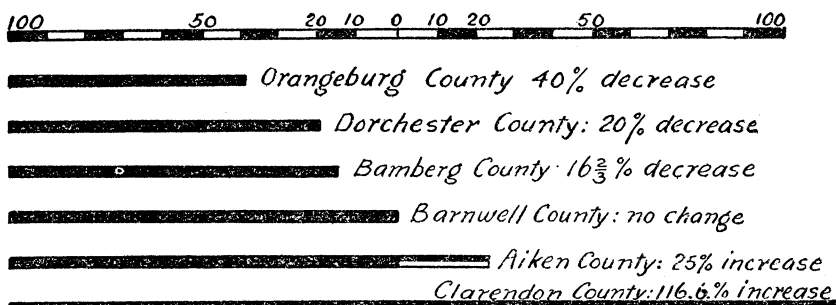


CHART II.—Increase and decrease in incidence of typhoid, 1917-1919: Orangeburg has had a county health department for three years. It has an area of 960 square miles and has made the same appropriations each year as Darlington, with 600 square miles. Other counties compared have had no city or county health organizations.

done, with the exception of two "black" counties. These two counties, with a large black population, give poor reports, as so many of the Negroes are unattended by physicians and "fever" is given as a cause of death. Mr. C. W. Miller, our vital statistician, who helped me to get up these statistics, thought the statistics of these two counties unreliable.

It will be noticed (Chart I) that each county touching and compared with Darlington shows an increase, while Darlington shows a decrease in typhoid—Darlington shows a decrease of 57.9 per cent from 1917 to 1919.

Orangeburg shows a decrease of 40 per cent (Chart II). This is one of the largest and most populous counties in South Carolina, and it would naturally take longer for results to show. The State at large has gradually decreased its typhoid death rate, as illustrated in Chart III, from 35.2 per 100,000 in 1915 to 21.7 per 100,000 in 1919.

CONCLUSIONS.

The reduction of typhoid fever is largely a matter of education. The building of privies alone will not check typhoid entirely, but will reduce it. We have purposely held no campaigns of free inoculations of antityphoid serum in Darlington and Orangeburg Counties,

and the results shown are due to educational work and privy building alone, and not to inoculations. If this disease can be so materially reduced by education, it would seem that all other diseases of which the cause is known could be reduced in a similar way.

A county health organization is necessary, as one physician or nurse without assistance is not adequate for the supervision of the health conditions of a whole county.

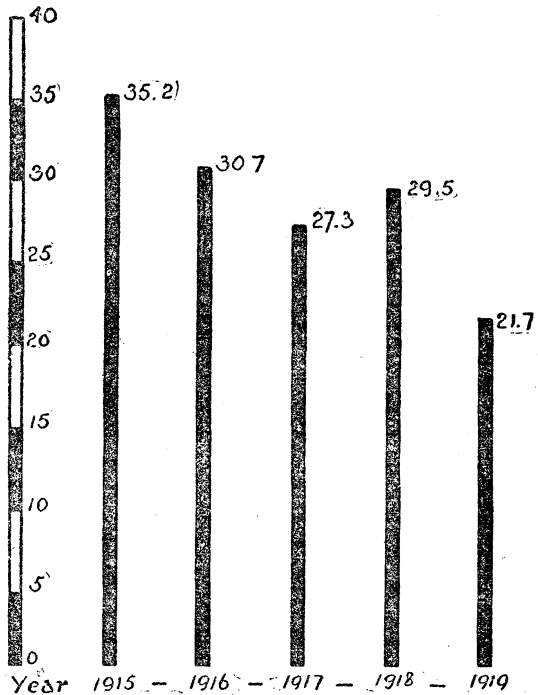


CHART III.—State typhoid death rate per 100,000.

PUBLIC HEALTH ENGINEERING ABSTRACTS.

From time to time abstracts of articles pertaining to sanitary engineering, of interest to sanitary engineers and other public-health workers, will be published in Public Health Reports. In presenting these abstracts no attempt is being made to cover completely the field of current literature on the subject. These abstracts give only